

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 10177-118-28	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2004/023187	International filing date (<i>day/month/year</i>) 16/07/2004	(Earliest) Priority Date (<i>day/month/year</i>) 17/07/2003
Applicant SCIMED LIFE SYSTEMS, INC.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☒ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. _____

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

National Application No
PCT/US2004/023187

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61L27/38 A61L27/36 C12N5/00 C12N5/06 C12N5/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61L C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 99/37337 A (ST JUDE MEDICAL) 29 July 1999 (1999-07-29) the whole document	1-41
A	US 5 916 265 A (HU JIE) 29 June 1999 (1999-06-29) the whole document	1-41
A	WO 02/096476 A (FISHER JOHN ; INGHAM EILEEN (GB); BOOTH CATHERINE (GB); UNIV LEEDS (GB) 5 December 2002 (2002-12-05) the whole document	1-41
A	WO 96/32905 A (BISHOPRIC NANETTE H ; DOUSMAN LINDA (US); ST JUDE MEDICAL (US); YAO YU) 24 October 1996 (1996-10-24) the whole document	1-41
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

19 October 2004

Date of mailing of the international search report

29/10/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
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Authorized officer

Mossier, B

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/023187

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>WO 02/14480 A (UNIV DUKE ; KOH JENNIFER (US); PRABHAKAR VIKAS (US); MITCHELL SHANNON) 21 February 2002 (2002-02-21) the whole document</p> <p>-----</p>	1-41

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/023187

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 1 - 41 are directed to a method of treatment of the human/animal body, respectively do not exclude surgical treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

National Application No

PCT/US2004/023187

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9937337	A	29-07-1999	AU 2465899 A BR 9907273 A CA 2319000 A1 CN 1289259 T EP 1051204 A2 JP 2002500929 T WO 9937337 A2	09-08-1999 04-09-2001 29-07-1999 28-03-2001 15-11-2000 15-01-2002 29-07-1999
US 5916265	A	29-06-1999	NONE	
WO 02096476	A	05-12-2002	GB 2375771 A CA 2447847 A1 EP 1392372 A1 WO 02096476 A1 US 2004157206 A1	27-11-2002 05-12-2002 03-03-2004 05-12-2002 12-08-2004
WO 9632905	A	24-10-1996	AU 5564996 A EP 0821573 A1 WO 9632905 A1 US 5855620 A ZA 9603151 A	07-11-1996 04-02-1998 24-10-1996 05-01-1999 24-04-1997
WO 0214480	A	21-02-2002	US 2002115208 A1 AU 8496801 A CA 2419817 A1 EP 1315796 A2 WO 0214480 A2	22-08-2002 25-02-2002 21-02-2002 04-06-2003 21-02-2002

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2004/023187

International filing date (day/month/year)
16.07.2004

Priority date (day/month/year)
17.07.2003

International Patent Classification (IPC) or both national classification and IPC
A61L27/38, A61L27/36, C12N5/00, C12N5/06, C12N5/10

Applicant
SCIMED LIFE SYSTEMS, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/023187

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
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Box No. II Priority

1. ☒ The following document has not been furnished:

- ☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).
- ☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/023187

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 1 - 41 (with respect to industrial application)

because:

- ☒ the said international application, or the said claims Nos. 1 - 41 relate to the following subject matter which does not require an international preliminary examination (*specify*):

see separate sheet

- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☐ no international search report has been established for the whole application or for said claims Nos.
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
 - the written form ☐ has not been furnished
 - ☐ does not comply with the standard
 - the computer readable form ☐ has not been furnished
 - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.
- ☐ See separate sheet for further details

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/023187

Box No. V Reasoned statement under Rule 43*b*/s.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1 - 41
	No: Claims	
Inventive step (IS)	Yes: Claims	1 - 41
	No: Claims	
Industrial applicability (IA)	Yes: Claims	no opinion
	No: Claims	

2. Citations and explanations

see separate sheet

Present application concerns a method for producing a decellularised extracellular matrix material (ECM) and/or a tissue regeneration scaffold containing a biological material such as VEGF. The produced "material" is to be used for implantation/injection into a patient. The claimed method comprises the steps 1) conditioning the body tissue of a donor animal to produce the biological material, 2) allowing the conditioned body tissue to produce the biological material, 3) harvesting the body tissue and d) decellularising the conditioned body tissue to contain the extracellular matrix. Methods as well as decellularised ECM, respectively implantable medical devices comprising a surface containing said ECM are claimed.

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

III.1 Claims 1 - 41 relate to subject-matter considered by this Authority to be covered by the provisions of Rule 67.1(iv) PCT. Consequently, no opinion will be formulated with respect to the industrial applicability of the subject-matter of these claims (Article 34(4)(a)(i) PCT).

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

V.1 The available prior art documents disclose prostheses having components that have been modified with a polypeptide growth factor such as VEGF wherein VEGF is joined with the substrate by direct contact in solution (D1), methods for preparing biological implants by removing cellular components and forming an extracellular matrix wherein the tissue is fixed by cross linking (D2), methods of improving decellularisation of matrices or tissue engineered biomaterials prior to implantation (D3), and bioprosthetic implants comprising an extracellular matrix having collagen and elastin components (D4). None of the available prior art documents refers to a method for producing a decellularized ECM containing a biological material wherein the method comprises an conditioning of the body tissue of the donor animal in order to produce said biological material. Hence, the subject matter of claims 1 - 41 is considered as novel since it is not anticipated by the available prior art and it complies with the requirements of Article 33(1) and (2) PCT.

V.2 Since none of the available prior art alone or in combination with another one

suggests a method for producing a decellularised ECM containing a biological material wherein the method comprises conditioning of the body tissue of the donor animal in order to produce said biological material, the subject matter of claims 1 - 41 appears to be inventive (Article 33(3) PCT).

- V.3 For the assessment of the present claims 1 - 41 on the question whether they are industrially applicable, no unified criteria exist in the PCT Contracting States. The patentability can also be dependent upon the formulation of the claims. The EPO, for example, does not recognize as industrially applicable the subject-matter of claims to the use of a compound in medical treatment, but may allow, however, claims to a known compound for first use in medical treatment and the use of such a compound for the manufacture of a medicament for a new medical treatment.

Re Item VIII

Certain observations on the international application

- 1) Claims 1, 27, 31, and 35 - 37 do not meet the requirements of Article 6 PCT. The term "conditioning body tissue" used in said claims is vague and unclear and leaves the reader in doubt as to the meaning of the technical feature to which it refers, thereby rendering the definition of the subject-matter of said claims unclear. In addition, the matter for which protection is sought is not defined in said claims. The claims attempt to define the subject-matter in terms of the result to be achieved which merely amounts to a statement of the underlying problem, without providing the technical features necessary for achieving this result.